Introduction and guest background

toxins that are excitotoxins that wind up the activity of the glutamate receptors. It feels like you have super high glutamine, but you've super-high reactivity of glutamic receptors, and so those toxins are mercury, glyphosate, probably arsenic and cadmium will do it as well.

a number of mold toxins, a numbers of dysbiotic toxins. And so all these things going up there, and especially if vascular inflammation is opening up the blood-brain barrier, all this comes as an assault on the brain.

Hey everybody, welcome back to another episode of Microbes and Mental Health. I'm Dr. Diane Mueller, I am so excited to introduce this next guest, Dr Chris Shade, the founder of Quicksilver Scientific, a very dear friend of mine.

Welcome to the show, Doctor Shades. Thank you very much, Diane. Happy to be here. Thank you for coming. And we're going to have, we have a really interesting talk plan today.

We're gonna talk about neuroinflammation, and we are going talk to about the brain, about metals and mold and infections, tie it all back to mental health.

But before we go there, tell us a little bit about how you got into this field, how got inspired to create the amazing company you have. Just tell the background.

Yeah, well, you know, it probably started with taking hallucinogens in college. I'm supposed to be, now you can say that like 10 years ago, people will be like, Oh my God, Chris, don't say.

Well, that's what I've gotten here. I was doing environmental science at the time. And at that time you're just running around chasing DuPont, measuring toxins in the water and saying they're too high or too low and they are always too hot, but you just playing this dumb game.

I know I watching this and I'm like, this isn't very cool. Then I dropped some acid, took some mushrooms, became an organic farmer. and then I like all about health.

Let's fix the health of the people, we'll do it through food. And then I worked at Rodale Institute, healthy soil, health food, and healthy people. I started my own organic farm and I joked that I went out of business the year Whole Foods came around.

It was a little too early. Then I shifted back into academia around And I was looking at pollution around agriculture, and then I went to do my PhD. And it was going to be more of that, but it just so boring.

It was like, yeah, you put the fertilizer on, it ends up in the stream. Whoa. Of course it does. Then I met this guy who was studying global cycles of mercury pollution.

He was super smart, Bob Hudson, he just talked about all these different levels of how everything fits together. You know, really, systems, biogeochemistry, because this is the whole globe and its systems, the geology, hydrology, microbiology, all fitting together.

And that's what I really liked studying. I was looking at mercury fitting into all this stuff. Then I came out of there and I wanted to start measuring mercury in people.

And I started doing environmental samples because that's where I was trained. But in the crash, the last recession, well, like the big one of 2008, 2009, when Lehman broke and everything, somebody told me, you know, health care is the only thing that doesn't go down in a slump.

And so I wanted to do that. So I just jumped in and I had tools that they didn't have. I have the ability to measure mercury in ways that weren't available.

and, I already had supplements that didn t have like IMD or metal binder for the gut. Binders are all big now, but then there wasn't anything really specific for what we were trying to do.

So I jumped in right there. We started having great results on mercury toxicity. Then I had to fill in all the gaps. What systems are we upregulating?

And that was the glutathione system. How, what else do we gotta work? We gotta get liver gating right. we got to get all of the binding right, not just for the metals but for other things.

We, you know, we got to support the whole glutathione, support, the, kidneys, and that was the growth of the company. And it was really, once we had the binder, yeah, to get glutothione in, that brought us the liposomes and nano emulsions and all this stuff that we're known for in the bioavailability world.

That was what really opened the gate to do so many things that just weren't able to be done before. So that's how we get from there to here. Amazing, amazing.

And I want to come back later when we talk about treatment to the technology, the nanomulsified, all of that, because I think it's super important. For now, though, let's just start with kind of the neuroinflammation picture.

How do we get neuro inflamed? What does it mean exactly? what are the high level things that people really need to know about neuro inflammation and connect that back to mental health picture?

Oh yeah, and you know, story wise, like when did I get into neuroinflammation? And I'm very into neural inflammation. I lecture on it a lot.

What neuroinflammation is and how it starts

And it was in autism. So when I came into this world, so first I am solving this mercury toxicity thing. I'm brought in really through the holistic dental world.

And so I am TIA, BDM, HDA, these are the Holistic Dental Associations. I was lecturing for those guys and then brought into integrative medicine through, uh, the first big lecture that I did was for Deidre Klinghart on the day of my 40th birthday at the Chemical and Heavy Metal Symposium.

So I was going into that integrative world and then you're quickly pulled into the autism world. Like, oh, you have solutions for metals and toxicity.

Boom. They start having you lecture at autism one and maps and Taka places like that. So, I started going to autism 1 and you know, detoxing an autistic kid that back then consisted of first you get some homeopathics and you wave them in front of their face and they hurt.

And, you know, a year later, they take a drop. A year, later you move up to a tincture, five years later. You're, starting to get sort of relevant clinical levels of anything into them.

So it's like, why did they hyper-react like that? And so there was this hyper reactivity that was very neurological. And all the great work around autism now is showing this autoimmunity in the brain driving the neuroinflammation.

But there's a big brain side and there is an immune reactivity too. The brain one is the strongest of them. And it's

called neuroinflammation. And the way neuro inflammation works is you've got an immune system in your brain that's supposed to be a passive immune.

So you got some astrocytes that sort of signal in there and then you get the microglia. The micro glia are in their and supposed do synaptic pruning and get rid of old stuff and, you know, open up you up for more neuroplasticity.

They're supposed be your friends, and they're just up there chiseling away at stuff. signals from the peripheral immune system make it into them and activate them, called activated microglia, into this angrier, more peripheral form.

So the Peripheral Immune System brings out all your pro-inflammatory cytokines. All of a sudden, the neuroimmune is starting to throw out proinflammatories cytocines, And they are irritating and even pro-oxidants and stuff.

And so those are toxic to the neurons, especially around the glutamate receptors. So you have this back and forth between the activated microglia and the glutamates receptors, which is where you get like glutamic cytotoxicity.

So the microglia activate the glutamate receptors. They get hyperactive. So they start having hyper-active glutamic signals and hyper active glutamine signals are fight or flight signals.

Glutamates makes you sort of on it and aware and gives you vigilance. But when they're too high, they give you anxiety and fear. and paralyze you. So they're going too high and then they start secreting other chemicals that go and re-irritate the microglia.

You've got them in this self-propelling neurotoxicity that we know when we have stuff and we brain fog or anxiety going on. This is neuroinflammation.

And it's when these signals make their way in. So the thing is, you can start it really from either side. The more you irritate either the side, the more it spits.

One of the most quintessential ways to activate the microglia is through endotoxin. So endotoxemia, I mean, what's your main thing that we talk about with endo-toxemia now is what you got, right?

And so endoxin are little parts of bacteria, not the whole bacteria but they're going through these loosened junctions in the GI and they are getting into circulation.

Now, your immune cells have these pattern recognition receptors that are looking for dangerous patterns. And a pattern of an E. coli in your blood is a very dangerous thing.

Like, oh my God, there's sepsis, sound the alarm, and they wind up pro-inflammatory cytokines, making the endotoxin an inflamogen. It generates inflammation, generates it all through your body, but very strongly through the brain.

And there's other ways that we get the endotoxin in that, we miss all the time. I mean, UTIs are well-known chronic infections in your jaws, in you nasal cavities, but periodontitis.

Very highly correlated with endo-toxemia, correlated heart disease, and correlated depression. Depression is a neuroinflammatory disease. Cardiovascular, these are vascular inflammatory diseases.

So endotoxin can do it on the microglia level, but so can a number of toxins. And on to neuron level glutamate receptor agonists, toxins that are excited toxins, that wind up the activity of the glutamic receptors.

You know, it feels like you have super high glutamine, which you've super highly reactivity of glutamy receptors and so those toxins are mercury glyphosate.

probably arsenic and cadmium will do it as well. A number of mold toxins, a number or dysbiotic toxins. And so all these things going up there, and especially if vascular inflammation is opening up the blood brain barrier, all this comes as an assault on the brain.

So this is happening all the time in the autism kids. You know, they're like anxious and irritable. This is hyper reactive glutamate unbalanced by GABA.

So in the brain, you have the glutamate receptors, the GABA receptors in this yin-yang thing. So fight or flight is on the glutamates side. Rest, digest, repair, regenerate, detoxify is in that Zen-like neurotransmitter GABAside.

So as long as you're there, you are in fight or flight, locking up and deprioritizing all healing modalities and especially detoxification. So bile flow and the movement of bile and toxins out of the liver is totally dependent on that.

You lock up all of that, lock things up at a cellular level, whole autonomics are locked. So how are you going to detox these kids? And at the same time I was coming into there, people were saying, hey, did you try this new legal weed, CBD?

We started ordering, bringing in CBD. I remember I paid 30 grand for the first kilo of this stuff that looks like crankcase oil that came from Germany.

It took me so long to get that cleaned up. Oh my God. CBD is a miracle at blocking neuroinflammation. It blocks, it stabilizes the microglia. So they stop releasing all these pro-inflammatory and irritating mediators.

It stabilises the glutamate receptors. And so we started to use all of these tools and it turns out GABA can be used as well. Some kids hyper-react to anything cannabinoid.

These tools were able to like chill things out and then we come right in with the detox behind it. And whoosh, all of a sudden I got these kids on like adult doses of Pushketch liver detox.

And it was like, you never even imagined that could happen. Boom, it opens the door in the safe passage way to start offloading the toxin. Yeah, amazing.

There's so much there. I'm going to give a brief summary of everything I heard. It's a lot, so I want to take a pause because there's too much here. So I am going give you a kind of way oversimplified model of what I said for everybody that's reading that just needs their brain to process this.

How neuroinflammation affects mental health

And then you tell me if I have anything wrong. Because I wanna make sure everybody is very clear that when we're saying peripheral inflammation, we are talking about inflammation throughout the body.

So basically that is, it's inflammation created anywhere throughout the body that it is going to wind up hyper activating these microglia of the brain, leading to this inflammatory cascade which leads to the neuroinflammation, correct?

Well, kind of. Inflammation. So we got circulating cells and then we've got some sort of stuck. They're turning up inflammation that we think of like within the bodies.

And then when it makes its way to brain when some things make it into the brains, then that can trigger it, and it can be peripheral inflammation triggering it.

It can't be toxins going up and triggering. But the point is the brain's immune system should be separated from the peripheral, so that if there's peripheral we don't necessarily turn up neuroinflammation, but often they bleed across.

Yeah, blood brain barrier disease with a brain that's leaky and the next thing we know there's mercury and all these other things, the glyphosates and pesticides and these things in the brain.

Yeah. Anything else that I missed there, we need to summarize. Okay, perfect. So, when this is happening and people are getting in a vicious cycle, I know you mentioned a little bit about mental health.

But go into it besides the imbalance between, say, the glutamate and the GABA, what other mechanisms are happening through which these inflammatory processes are leading to things like anxiety, depression, bipolarism in the brain?

Yeah, because they very much do. In fact, you know, when you look at like the papers on cannabinoids and it'll be like, the ability to stop neuroinflammation is the reason for the anti-psychotic effect of CBD.

And so some of these things we know very directly. So when we have glutamate receptor activity, that's creating anxiety right away. Mercury alone is not all that inflammatory directly.

It can change inflammatory responses, but it goes right into the glutamate receptors and activates them. So its main first symptom is anxiety. Now, when you've got that hyperstimulated, the glutamates receptors, that's what you use for memory.

But memory brings fear because, oh, the lion's going to eat me. You know, The Fuzzy Little Koala is not, but it's usually fear and survival. And so when it hyper-going, you're always like hypervigilant, right?

That's the hyper vigilance disease. eventually that wears out and goes into cycles of depression. So exactly what goes up and then goes down and is that then blowing out serotonin?

Are we screwing with the HT1A receptors? I don't know, and we don' really know all the mechanisms in there, but when the inflammation goes the homeostasis is lost, the balancing of the neurotransmitters is loss, and things go just kind of haywire all over the place.

But this primary circuit that it's breaking first is the gobbleglutamate one, that's actually 80% of all neurotransmission. So the forward neurotransmitter, the excitatory one glutamate, and then the inhibitory and calming one GABA, that's 80% of the game up there.

And then all these things with dopamine and serotonin and epinephrine and neuroepineprine, those are all kind of secondary. They're super important. But once that first one's broken, I think then, then second ones start breaking.

In one person, it'll be this manic psychosis, in another person it will end up being depressive. So that helps. So, that kind of clears up like neuroinflammation, GABA glutamate out of balance can lead to serotonin dopamine issues, right?

And then let's take another step back because I know then what's coming up for people is like, okay, well, can't I just take anti-inflammatory? So can you talk to us about NRF2, anti inflammatory processes, where that fits in with this whole picture?

Yeah, I mean, like the crude picture is, will Advil save me from this? And when things are really wound up, yeah, you just toss a couple of those in there, just settle this and a few antihistamines and settle everything down.

But there's a lot of sources of inflammation. You know, so we've got endotoxemia, not just affecting the brain, but affecting everything. And when it does that turns down detoxification because inflammation is part of the pro-inflammatory activity of usually killing things.

Detoxification is anti- inflammatory, it's antioxidant, whereas inflammation's pro oxidant. So we're turning down antioxidate and detox stuff when that comes up and making us hold on to more toxins.

A couple sources of inflammation, you've got endotoxemia. Infections, of course. Mass cell activation is a super big one, and our mass cells are all scurry haywire post-COVID, so that activation's just out of hand, then everything we eat we respond to.

And then general food allergies. which are largely mediated through mast cells, but this TH1, TH2, and TH17 is a big axis too. So there's a number of things, of targets that we can go to, to bring down inflammation, But they're unique ones.

And so just general anti-inflammatories, They'll, in a really inflamed, really difficult situation, throw anyone you can on there to just bring it down and get a little bit of peace in the system.

But long term, you could disrupt your immune system even further. You could make your system less vigilant against infections, and your chronic infections might crawl in even deeper.

If you've got light-line biofilm infections if you're constantly nailing these big anti-inflammatories, all this stuff can go a little bit deeper. So the point is you've got to get rid of the sources of inflammation.

Toxins, infections, we're going to say those are the big majors. The secondary, mast cell activation and food allergies are secondary. They're secondary to toxins and infections, or they can be secondary.

To vaccines. So post COVID, whether you had COVID had vaccines, you're going to have immune dysregulation. The vaccines I see much more immune, dys regulation, and more just like inflammation goes for a little while.

But like, my son guilted me into getting one so I could go visit his restaurant in New York. Oh my God, what a freaking terrible idea. You know, they still like COVID twice.

Then I had allergies for the first time in my life. So then I have to like, God how am I going to stabilize these muscles? So sometimes you're going in, if you've If you've addressed the toxins and major infections, sometimes you're going in and creating peace in the immune system because the war can just like drag on post-COVID and you are reacting to all kinds of things.

You've got PTSD and your biochemistry. And then the Choristin, Luteolin, DIM, Vitamin C, Glutathione, chill that all out. Bring that back down. Oh, and CBD especially, bring that down to harmony.

Inflammation, NRF2, and calming the immune system

I just want to bring up something here that when we're working with CBD and with GABA. We're working on the neurological system and the peripheral immune system.

This is one thing I wanted to get back to it in the beginning. I said, well, these kids, autistic kids were having this wind up to these substances you gave them.

You're trying to give them better and they wind them up and it's neurological, but it seemed like it was immune too. It is. Both the brain and the peripheral immune cells, macrophages, mast cells have cannabinoid receptors and GABA receptors.

And so all of those help tune down the brains and peripheral system and bring that back down to some peace. So sometimes you're just bringing down peace, but you've got to make sure that your main drivers are being addressed and taken out of the system.

Yeah, so two-part thing. We want to bring peace, we want get to the root cause of why the body is a problem piece, right? Yeah. And that's why you can't just throw any old anti-inflammatory in there.

So let's talk a little bit about the, since this summit is about, you know, microbes, let us talk about a bit more about infection component more deeply and what infections you think that are most troublesome from a

neuroinflammatory standpoint.

I know we talked about some are grim negative bacteria that have our BLPSs and you mentioned Lyme. What other infections are you really seeing causing neuro inflammation and then let go into treatment after that.

Herpes family is a big one. Herpe 6, you know, it's like we live with all these herpes viruses in us, and there's herpe 1 through 30, people tend to be like herpies 1 and 2, but Epstein-Barr and cytomegalovirus are 5 and 7. And then 6 is the real nasty mofo in the brain.

95% of the population have 6 in their brain! When does it get wound up? And it gets wound during these inflammatory situations where maybe you're turning down glutathione.

So glutathiol is a major regulatory aspect of herpes viruses. And when glutothione is low, herpies goes up. In fact, so many people when they have dental amalgams and this chronic mercury toxicity, have a lot of herpes action.

And when we first came out with IMD, that powder for, for taking mercury out of the GI system, so many people came up and were like, you know, not just type one, type two, they're like hey man, my herpies is gone where it used to cycle on this frequency.

And there's cell culture papers where when you deplete glutathione, herpes will just decimate a cellculture. But if you put extra glutothione in there, it can't even get a leg up and get going.

And so in these chronic and inflammatory situations, you're down regulating glutathione production. Toxic situations you are dragging glutothione out of the system.

And when that glutathiol goes down, your TH1-TH2 balance goes off. You become more TH2 and TH17 dominant. You lower interferon, your major intracellular antiviral cytokines.

So interferons going down and then a number of these other ILs that are associated with two, those are going up. You're chronically allowing presence for the virus.

to get in there. And once it gets in, there, you know, like especially FC Barham, once that gets a hold of things, it's down regulating anything it doesn't like.

So that's a big one that get's in and can be addressed by controlling neuroinflammation, bringing glutathione up, getting toxins back down out of the system.

Yeah. It's super, super helpful. So let's talk treatment. I want to talk a little bit about the, you know, where we start at the nano emulsified liposomal technology, because I think it's important, especially since we're talking about brain health and some of these things entering the brain, right?

And so if we have some neuroinflammation, we had infections and toxins in the. Talk to us about, the uniqueness of your technology and what that really does for, cellular absorption, brain help, that sort of thing.

Yeah, and that's a big thing. And add one note to just rolling forward, sometimes the brain inflammation doesn't need a microbe in the brains. So biofilm infections that are vascular, anything that is winding up the inflammation, can wind up the leaky blood-brain barrier that brings that inflammation into the brain.

So when we start talking about healing things, we're also going to talk about tight junctions, not just the GI, but the tight junction in the blood brain barrier.

Those are all often NAD and sirtuin control. As we get into healing stuff, bringing high levels of NAD into this system becomes more of a sealant for it.

So how do we get stuff in there? Our strength is the delivery system. And the deliver system are liposomes,

nanoemulsions, and something called self-emulcifying delivery systems.

So most people have heard of lipasomes and they just put everything into, oh, it's lipozomal this or that, you know, but fat soluble actually don't go into lipozomes very well.

They go in to these things called nano emulsion. A lipozome is like a tiny little cell. It's a sphere made out of phosphatidylcholine and other phospholipids that look just like a cell membrane, but you're thousands of times smaller.

And there's water in the middle, and you put water soluble things in there, like glutathione, vitamin C, E complex, NAD precursors, nMN, or nicotinamide riboside.

Those all go into a liposome. Nano emulsion is a monolayer of the phospholipids and other surfactants with an oil droplet in the middle, and then you put fat soluble in there, CBD, vitamin D, K, A.

all the really strong phytochemicals, most of them will go in there. And so if we're talking about berberine or quercetin, resveratrol, curcumin, you can tune these particles so that the center of em is like a beaker and you've got just the right elements to dissolve all of these compounds in them.

We're going to make these particle so small. in this, you know, nano range. Nano is just an arbitrary range, it's 100 nanometers. Below that's the nanotech, or the nano size.

This was just, was an arbiter designation made by the catalyst industry, because when they were making these nano titaniums, these small ones worked really well, cause they had high surface area.

And we'll get back to safety in there, and nano-titanium? No, no, nonono. Nanofossilipids? Yes, yes, because you make these things. It's very similar to how we traffic fats in the body.

So we're going to make this nano-emulsions of the liposomes in this less than 100 nanometer range. And when we put them into our mouth and hold them in there, they're go right through the capillaries in intra-oral space, right to the mucous membranes, and right into the circulation.

You're holding something in your mouth, within two minutes you can measure it in you blood. Probably sooner, I just haven't even tried it any sooner than that.

Five minutes, you have super high levels. That's the intraoral, then you swallow it and it's going through the stomach lining, makes its way to the upper GI, the rest of it gets in.

These compounds are peaking in the blood between 15 and 25 minutes after taking them. going in unmetabolized. A lot of these things, we have all this data on these phytochemicals working in cell cultures or injections in animals and turns out through your gut, you're starting to metabolize them already and the more active forms aren't getting in and they're taking hours to absorb.

And so you never have that peak in the blood that you need to activate the pathways we're going after. So when we talk about detoxification, but it's also an inflammation control, you have Nrf2, responds to peaks in the blood of these phytochemicals.

AMPK, which puts you into ketosis responds the peaks. In fact, if you put a bunch of things that are AMP K activators in, and you take it orally, your going to ketoses in 30 minutes.

And you don't have to be, You could have eaten carbs the day before. It'll still work. It's getting these compounds all in, coming to bear on the situation all together.

And then we can have something in a liposome, something on a nano emulsion, another thing, all come together and open up all the doors and activate all of the pathways and get everything flowing.

Infections, herpes viruses, and glutathione

We call that biosynchronous activation. We're synchronizing all the activities. The CBD is going and calming down neuro and peripheral inflammation, allowing detox as the nRF2 up regulators get in there.

Glutathione is in for the cells to use. Everything is moving down. Liver supplements are activating the liver to pull toxins in, activating bile to dump the toxins.

All toxins move with bile. And since we've done that all at once, we coordinate this flow out and through, out of the periphery, through the liver and into the GI.

Then a half hour later we come in with our binders and mop it all up and tie a nice little bow on this cycle that we call push-catch. So you're not just spitting out toxins here and there.

You know, first the lipoid gets in and then some vitamin C, hours later, bare brains in there, quercetin's wondering what to do and where to go. You got to get it all in, do your job, and let it go away.

So I want to really emphasize something you said, because I think this is such a really great point for people of, you know, like oral taking a supplement, orally one of the problems I'm hearing that you're sharing is like, there is a slower level of absorption.

And because there's not that same peak that your going to get from your type of delivery, your not going trigger these pathways that are health promoting, that detoxification, anti-inflammatory.

The pathways don't even get triggered, even if the supplement in an oral situation is getting absorbed in some of these situations. Right. You either never get to a high enough dose to trigger it, or you're taking three things that you want to act together.

One goes in fast, one takes three hours, and one take eight hours. They're never hitting the right targets at the time. Yeah, yeah, it makes a lot of sense.

So, you know, in thinking about how to treat a lotta this stuff, so let's say we have mental health, maybe it's anxiety impression, or maybe its autism, whatever the issues we're dealing with.

We have infections, we had toxin, somebody's inflamed. Like, do you recommend most people start with your push-catch system? That holistic type of we are gonna do everything and get everything in circadian rhythm, is that where you'd recommend people to start?

Well, we have a couple different levels to come into the game at. You can see this titration curve of a dosage level over time and really sensitive people are starting low and they're working up the high doses and coming back down.

Like even in push catch, We have level one, two, three, and an optional level four. Or we has something called pre-tox. So a lot of the real sensitive ones, we're talking about like nRF2 activation is going to get peripheral toxins blown into the blood, the to the liver, liver to GI and catch them, or blood to kidney, kidney out to urine.

It means they're going from the tissues to blood before they get trained. A lot of people have had drainage issues. Blocked bile flow, blocked urinary flow blocked GI blocked lymph.

The last thing you want to do and they're so they have a high blood circulating toxin level. They're not draining a lot out. they are already super activated and the last you wanna do is put more toxins from the tissues into the blood.

So you start with drainage remedies. This is get bile to drain out of the liver, take the toxins out, turn up diuresis and help toxins move out to the kidneys.

Get the GI flowing, get the binders in the G. I. get, the toxins out at the, G I get movement in. Let's get the blood levels down, give them a month like that, and then we'll go and squeeze more from the periphery.

Because if you try to squeeze in more, you wind up more inflammation. Any time you wound up inflammation in the job of detox, he blocked detox. So we call that the pre-tox protocol.

We have a pre detox protocol, we can do that for a Then go into push catch or advanced pushcatch. Or if you're working with a practitioner, you want to go under a Cube 2.0. That's like the Mac Daddy of them.

We have a mold detox. So there's different ways to do this, but you wanna start light. And then when you get into the bigger stuff, You're still gonna start low and move yourself up.

So in that regard, I'm curious from a cellular level, right? So we have these toxins that are being released and we're breaking things down, we are making sure we aren't going too fast because too many toxins going to fast could negatively react, negatively actually impact the cycle, so how are we controlling from the cellular levels with our cells holding on the toxins?

How are controlling like making that the cells are even releasing toxins, what are doing from cellular standpoint of things? Well, the big trigger for getting the cells to push things out is this NRF tube.

And so the one that we use for that is called R-Lipoic acid. So if you're in this pre-tox thing, we want things that Open up bio flow, open up urinary flow.

You know, maybe some free radical mops. In fact, we use vitamin C instead of glutathione to calm down free, radical activity. We've got the binders. If you want more of a passive drainage, you don't want to activate Nrf2 too hard.

And so we have no lipoic acid in that one.

Delivery technology, detox, and treatment strategy

We, in this case, we know quercetin and luteolin can help Nrf2, DIM can't help. None of those involved in, this level of that. Some of the other big ones like sulforaphane is a big NRF2 activator and a lot of people are like.

Sulphuraphane, great, I'm going to detox and they just blow themselves out. Or even something to think about big is the whole sort of the NRF2 up regulators are either in the polyphenol families or more powerfully in sulfur vegetable families.

And so, sulphurophane is from broccoli sprouts. Allyl isothiocyanate is what you would get when you're eating wasabi and there's some wassabi supplements out there.

There's a number of other sulfur compounds from alliums and from crucifers. Lipoic acid is a sulfur compound. I like lipoic because it's less reactive with the CBS system, the cystothionein beta synthase system.

And a lot of people who are toxic, they're doing a LOT of the crucifiers and allium and things like that, thinking they are helping themselves detox and they got to take them.

out of the system totally. They usually have to bring the liptin levels up, but there's a lot of free radical activity that comes with them. There's lot irritation of a system that come from them and let's take that out, get the drainage going, and get system calmed down and then we can slowly bring that up.

Here's the thing, NRF2 up regulators, every single one of them is a toxin. You think these things are antioxidants. Green tea extract, that's an antioxidant because it brings up Nrf2.

No, it's pro-oxidant and actually makes free radicals. I podcast it. It's a pro accident. And makes three radical that

oxidizes, keep one to release NRF2, the strongest of them all.

is sulforaphane. So it's also by far the most toxic of all these phytochemicals. And so this dance that you're doing, you want a light free radical activity to upregulate nRF2 without having collateral damage.

Phenobarbital is nrf2 up regulator, methylmercury is, arsenic is cadmium is. But there's a lot of negative effects that come with them. It's important to know when to start hitting those triggers.

Yeah, so what I'm hearing in that is like just because we think it's like good just, because, we, think, it,'s good for detox just. Because we've heard that it helps with the process like don't think that there might not be some bad you know quote unquote bad pathological process and be careful because some of the stuff is, like, not necessarily true.

antioxidant at least until it reacts with things like KEEP-1 and start that process of NRF, right? We have stuff also down regulating NRf-2. Mold down regulates NR-F2 activity.

One of the uses of DIMM is to help free NR2 up from the mold. So this guy called me once and they'd given a woman with high mold toxicity a lipoic acid IV and she had all this microvascular bleeding.

She just like melted. And he first told me she melted after a lipoic thing. And I said, where was she living? In a moldy area? He goes, yeah, Florida.

I'm like, Yeah, Nrf2 is downregulated. So then the lipoxic acid is just a toxin. Yeah. Do you want to, what else do you wanna cover today? What else have we not covered?

You want a cover and do want. I did write down about sirtuins and leaky gut. So sealing up the periphery is a big thing when you're trying to get to your people who are real sick and they have all kinds of stuff.

You'll have them doing nasal washes. I have a brush with our artemisinin gel to clear up all the stuff in there. They might be gargling with stuff. You've got to keep all that clean to stop that inflammation.

But locking up the tight junctions in the GI and in brain is a sirtuin dependent activity. So NAD, sirtuin activators, and BK activator all go together, but I would do lots of N. A. D precursors like NAAD Gold or NNAD Platinum.

A lot of people were like, oh my God, I couldn't deal with gluten before, now I can deal it. My brain fog has gone away. But, you know, make sure you get up to some high doses, like NAD Platinum, there's dosing on there for half a teaspoon because it's expensive, but if you're trying to seal this stuff up, You're taking two, three, four teaspoons a day.

And as soon as you feel lightening, brightening in the brain, know you are sealing that up and you sealing up the tight junctions as well. Awesome, awesome.

And then do you want to mention any of the products you have coming up down the line and talk about that at all? You know what? Oh, well, you and I have been working on some lime critter formulas.

So cryptolepsis in an animal emulsion and cryptolpses with mylax and Japanese knotwood. Uh, those two will come out. Uh we have, uh, it's been a little delayed.

We have a collagen coming out that's got all kinds of keto things in it. That'll be really good for leaky gut. Cause it has got sirtuin activators. It's Got Quirstin, resveratrol and terastilbene in along with some green tea extract embedded into the matrix of the collagen.

So that'll work as long as you're taking some NAD supplement on the side, that will work to seal up leaky gut as well. Those would be big in this mental microbes and mental health world, both of those sets of products.

Yeah, and I'm really excited everybody about these supplements coming down the line because especially in like the chronic infection world where these microbes sometimes hide, you know, in these intracellular spaces or they burrow so deep in our tissues, they're latent, They don't trigger our immune system anymore, all of these types of scenarios.

And the research we're seeing on some of, these herbs are, it's just like phenomenal. So to put them in this technology is like, It's just mind blowing.

Yeah. And so what I've moved to doing a lot of is, you know, You've got like a single compound that you're, showcasing, like, a pure thing, Like a resveratrol aquaristin, and then you've Got whole plant extract that's filling in all these things.

We don't know everything that it's doing. and then put them all together into these delivery systems. You'll see liver sauce does that and the kidney does, that the performance cardio does.

And, you know, micromanager does and we'll that more in the ones that we're working on to bring it out soon. So amazing, so amazing. And you guys, Dr.

Shade has kindly offered us a discount coupon code for his products. So make sure you check out the speaker bio information. We'll have a special link and a code there for you to check all of this out.

You also have amazing tests for mercury and toxic metals and minerals and all that. Want to make everybody aware of those tests that are available as well.

Do you have any final concluding thoughts you want to leave us with today? I always say no and then I give you a final thought. So yeah, I do. Sometimes it can be really like, oh my God, scary like this, especially when you've got damage in the brain from ongoing inflammation.

Sealing barriers, future products, and closing thoughts

Like, how do I handle this? There's so many things going on. There's not that many things. And you can have, you know, go through learning from people like Diane and myself.

You can go to a practitioner that can help you get through this, but you need to drain things, calm the immune system, and then you've got to go pick off Some of the creatures in there.

And when you get past a certain point, your immune system will take over and it'll clear the rest away. You know, the reality is in some of these biofilms and line, it's never totally, totally gone.

I have stuff that comes back over time. And I could feel it. The fog comes in, the tiredness goes in and the fuzziness comes. I know I've got to detox, I got a lock the barriers back up again and knock a couple of things out of the way.

But you will get there. You can get. And you just have to remember some of these points that are really essential. Yeah, and I think that the final thing that I'll say just in reference to what you're saying is, it's really cool, you know, to be able to empowered, right?

Where it is like the human body is not supposed to perfect every day, we have highs and lows, so it like so much of this work that you are doing on educating people and teaching people like how, what to look for, how to do this is so important because the idea with this like you start learning like, This is what my brain feels like when I'm neuro-inflamed and I know what to do and all of that, right?

So thank you so much for being such a wonderful resource as always. I enjoy every talk I ever hear of yours. It's such treat and a pleasure to be with you.

So really appreciate it. Oh, great. And I always have a great time with and we'll do more. Sounds great, see you next time. Thank you for tuning in to Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

For more insights and strategies, subscribe to our podcast and visit our website, www.doctortalks dot com. Stay connected, stay healthy, and join us next time on DoctorTalks, real talks from real doctors on the issues that matter to you most.